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| **World Meteorological Organization**  **COMMISSION FOR BASIC SYSTEMS**  **Inter-Commission Task Team on the WMO Information System**  **ICTT-WIS-1** Geneva, 12 -13 September 2016 | **ICTT-WIS-1/Final Report** |
| 24.Sep.2016 |

# Final Report of the First Meeting of the Inter-Commission Task Team on the WMO Information System 12 to 13 September 2016



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World Meteorological Organization (WMO)

7 bis, avenue de la Paix Tel.: +41 (0)22 730 84 03

P.O. Box No. 2300 Fax: +41 (0)22 730 80 40

CH-1211 Geneva 2, Switzerland E-mail: [Publications@wmo.int](mailto:Publications@wmo.int)

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# FINAL REPORT OF THE FIRST MEETING OF THE INTER-COMMISSION TASK TEAM ON THE WMO INFORMATION SYSTEM

# 12 TO 13 SEPTEMBER 2016

## 1 Organisation of the meeting

### 1.1 Welcome

1. Mr dell'Acqua welcomed participants and explained the background to the meeting. He emphasized the importance of holding the meeting to provide guidance to the sixteenth session of the Commission for Basic Systems, particularly on governance of the WIS, the strategy for future development of the WIS and the extension of WIS to lifecycle information management.
2. Mr Shi, Director in Charge of OBS at WMO, welcomed participants, and emphasized the importance of defining and effective governance structure for the WIS, particularly so that the WIS can meet the evolving needs of WMO Programmes as it moves into information management as well as exchange of information.

### 1.2 Agree Agenda and workplan

Input documents: [Doc01a](http://wis.wmo.int/file=3006), [Doc01b](http://wis.wmo.int/file=3048)

1. The agenda was agreed ([Annex 1](#_Annex_1:_Agenda)). The list of participants is in [Annex 2](#_Annex_2:_Participants).

### 1.3 Working arrangements

1. Participants agreed the working times for the meeting.

## 2. Introduction (Chair ICT-ISS)

Input documents: [Doc02a](http://wis.wmo.int/file=3051), [Doc02b](http://wis.wmo.int/file=3051)

1. Mr dell'Acqua explained the Terms of Reference for the team ([Annex 3](#_Annex_3:_Terms)) and the objectives of the meeting ([Annex 4](#_Annex_4:_Objectives)).
2. Mr dell'Acqua asked participants to summarize their impressions of WIS as related to their Commissions.
   1. Dr Lee (CAgM) considered WIS to be a bridge between different communities, bringing together information from all the weather, climate and water communities.
   2. Mr Brock (CAeM secretariat) noted that ICAO had been discussing its future information exchange system (SWIM), and saw WIS as the information exchange environment within the WMO community., including governance of the information being exchanged.
   3. Ms Desbios (CAeM) had little exposure to WIS, and noted that up to now there had been only limited interaction between ICAO and WMO on information issues.
   4. Dr Geir Braaten (CAS secretariat) described the current information exchange within the research community, particularly Global Atmospheric Watch, and described their experience of low success in using the WIS for near real time exchange of observations. GAW was planned to extend its scope to the creation of end user products derived from the observations. CAS centres were experiencing problems resulting from multiple data formats and multiple names for the same type of information. GAW was finding difficulties in centres being able to connect to the WIS for real time exchange.
   5. Mr Ariel Troisi explained that part of the JCOMM saw the WIS as a near real time exchange/access system, and that JCOMM had several platforms in use for different types of information. He cited the Ocean Data Portal and OBIS as examples, He further pointed out that global scale programs such as Argo, GDP or Sea Level have data flowing through the GTS. Nevertheless, there are still many sources of data and information that are not yet accessible,
   6. Mr Muchemi (SDD, PWS Programme, secretariat) explained that the PWS programme was concerned with delivery of forecasts and warnings to end users, and for this limited use was made of the WIS, such as in providing forecast and warning information to the World Weather Information Service (WWIS) and the Severe Weather Information Centre (SWIC) websites of WMO. WIS was however very important to PWS as the data used to generate forecast products that enable delivery of services by NMHSs are received through WIS. PWS was encouraging the use of the Common Alerting Protocol (CAP) standard which offered potential for transmission of alerts through WIS.
   7. Dr Zhai (CCl) described the CCl view of WIS as a globally integrated and coordinated mechanism for sharing and managing information, and emphasized the need for WIS to enable access to historical information. CCl, though, was not fully aware of the details of the WIS.
3. Mr Thomas (WMO secretariat) outlined the WMO Information System and the status of its implementation (see input document [Doc02b](http://wis.wmo.int/file=3051)).

## 3. Technical Commission representatives statements relating to TOR

Input documents: [Doc03a(CAS)](http://wis.wmo.int/file=3067), [Doc03b(JCOMM)](http://wis.wmo.int/file=3068), [Doc03c (CAeM)](http://wis.wmo.int/file=3069), [Doc03d (CHy)](http://wis.wmo.int/file=3059), [Doc03e(CCl)](http://wis.wmo.int/file=3074), [Doc03n(CAgM)](http://wis.wmo.int/file=3072)

1. Dr Klausen (CAS) outlined the impressions of CAS on the WIS. He considered it to be an evolution of the GTS that used more diverse technologies, allows non-NMHS to participate, and to improve their near real time exchange. WIS also provided catalogue services to facilitate discovery, access and retrieval and to promote the usefulness of WMO. He saw potential in supporting the MACC, Copernicus, SDS-WAS and IGI3S (Integrated Global Greenhouse Gasses System) systems. He saw the interaction being through the metadata activities supported by the GAWSIS and OSCAR platforms, through harmonized data formats, through information life cycle management (especially traceability of information), and through exchange of research and model data. He saw increased requirements for secure web services to allow providers outside NMHS to provide information and data. He advocated that WIS needs to act quickly to participate in the data management systems currently being developed under various international umbrellas such as EU, GEO. The WIS catalogue was at present difficult to use because often, too many items were returned by a search.
2. Dr Lee (CAgM) commented that although CAgM made extensive use of complex IT applications, it had few experts experienced with using WIS. He saw needs for training, and possibly development of WIS, to handle information that are used by CAgM and in engagement of experts not within the traditional WMO community, and for facilities to deliver products along the lines of the GDPFS. He identified with creating ontologies of terms related to CAgM, and considered that the WIS could assist with this. He saw WIS providing cloud based services for processing, storage and dissemination that were built on public or private partnerships, and a potential of WIS operating IT infrastructure that other Programmes could use without needing detailed technical knowledge. CAgM would look to WIS to meet its need for a mechanism to operate (and fund) secure shared computing resources.
3. Ms Desbios outlined the needs of CAeM for support from WIS. The requirements on Members for exchange of aviation information are defined in WMO‑No. 49 Volume II and is based on five types of centre, each responsible for producing different types of information. Additional information might be provided under other arrangements. ICAO is seeking to integrate the use of information from different sources within the aviation community but including the MET community to form an information-centric environment known as System Wide Information Management (SWIM). SWIM will use XML/GML and will rely on OGC web services (WFS, WCS, WMS etc). There is a need to clarify the expectations of interaction between SWIM (and its supporting AMHS communications system) and the WIS. Distribution of aviation information is limited to authorized users, but the current WMOOther licence code in the WIS metadata does not distinguish between aviation and other information for which access has to be controlled.
4. Dr Zhai (CCl) described the work of TT-DEWCE to implement a database of extreme events that included metadata about the circumstances of the event in addition to the direct observations of the events themselves. CCL expects to exchange daily observations, together with information on regional extremes, with a portal for delivery to experts and end-users. Mr Mucheni pointed out that the PWS was planning to implement an "alert hub" that would gather official warnings from around the world and that might provide contributions to the CCl database.
5. Mr Troisi (JCOMM) reported that JCOMM had implemented a task team for Integrating Marine Meteorology and Oceanographic Services within WIS, TT-MOWIS, that was working on the formulation of a “Guidance document” that shall define JCOMM procedures for marine data centres to be approved as WIS centres, and was championing use of the WIS throughout the marine community. The primary objective was to make metadata available through the WIS, with a second objective of increasing the amount of real time data being exchanged/accessible, aiming also towards delayed mode data and model outputs. The Task Team had also identified benefits of participation in the WIS in terms of global reach and raising the profile of data providers. A final reference was made to the contribution of data discoverability and accessibility to attain the SDGs.
6. Dr Berod (CHy secretariat) recalled the WHYCOS programme (WMO Hydrological Cycle Observing System, a framework for improving hydrological observations) and presented the Global Hydrometry Support Facility and Innovation Hub (GHSF), as well as WHOS (the WMO Hydrological Observing System). The first phase of WHOS, gathering existing information from national hydrometry networks, is implemented. A second phase is under consideration and should allow access to observations in standard formats (WaterML2) by converting them from the raw formats used by the information providers. It was based on industry standards, such as those of OGC. Enhancing the vocabulary used by WIS discovery metadata would enhance the usefulness of WIS to hydrology, and common use of cloud services by WIS and WHOS might offer benefits to both. Training would be a major task for the coming years.

## 4. WIS Network Governance & Decision Escalation Process

Input documents: [Doc04a](http://wis.wmo.int/file=3007), [Doc04b](http://wis.wmo.int/file=3004)

1. Mr dell'Acqua informed participants that the governance specified in the Manual and Guide on the WIS did not address how decisions should be made on which information should be designated for global or regional exchange, nor did the documents address decision making on security aspects of the WIS. TT-GISC, membership of which was drawn from the GISC operators, had proposed that following discussion with data providers and data users the TT-GISC should decide on whether or not information should be added to the streams that were exchanged routinely globally (or regionally).
2. ICTT-WIS recommended the escalation procedure in [Annex 5](#_Annex_5:_Recommended) for decisions concerning WIS that could not be resolved at an operational level.
3. Mr Thomas (WIS secretariat) outlined the issues around managing computer security incidents affecting operational inter-connected systems. ET-WISC had recommended an approach to managing security incidents that potentially impacted on the operation of the WIS.
4. ICTT-WIS supported the proposed security incident management process, but commented that care was needed to make sure that the process itself did not raise threat levels. It suggested that the text in [Annex 7](#_Annex_7:_Additional) should be added to the document describing the procedure following paragraph 8 of that Annex.

## 5. WIS Strategy Development - Gathering stakeholder requirements

Input documents: [Doc05a](http://wis.wmo.int/file=3003), [Doc05b](http://wis.wmo.int/file=3078)

1. Mr dell'Acqua outlined the process that had been followed to draft the WIS 2.0 strategy. This was intended to address perceived shortcomings of the current implementation of the WIS when supporting Programmes other than the World Weather Watch, to adapt to changing user expectations and to make use of developing technologies.
2. Participants commented that the terminology used in the strategy might prove to be short-lived and perceived to be linked to current technical approaches and that the strategy document might benefit from having the concepts behind the terms because they were likely to have longer life and relevance than the technologies themselves (for example the terms "cloud" and "open eco-system").
3. ICTT-WIS proposed changes to the WIS 2.0 strategy for consideration by CBS-16 ([Annex 8](#_Annex_8:_Revised)).

## 6. Planning and implementation of WIS Part C (Information Management)

Input documents: [Doc06a](http://wis.wmo.int/file=3077), [ICT-ISS/1.1 (Actions)](http://wis.wmo.int/file=1371), [ICT-ISS2015-1/D07](http://wis.wmo.int/file=1525), [ICT-ISS2015/D08](http://wis.wmo.int/file=1527), [Information Cycle](http://wis.wmo.int/file=2839)

1. Mr dell'Acqua outlined the principles of information management and requirements placed on WIS that were associated with information management. WIS 2.0 would specify best practices for information within the WMO community. He explained the plan to set up a task team (TT-IM, the task team on Information Management) to develop lifecycle data management recommendations for WIS, and that it was planned to hold an information management workshop to identify existing best practice, and that was open to all technical commissions. CCl had already expressed its willingness to participate.
2. Mr Troisi commented that JCOMM had an expert team (ET-DMP, the expert team on data management practices) that was developing best practice in data/information management for the marine community. The IODE office might be able to provide further assistance (Peter Pissierssens)
3. CAS had an expert team (ET-WDC, Expert Team on World Data Centres) , chaired by Jörg Klausen that could contribute. CAS and CBS also co-chair the ICG-WIGOS TT-WMD (Task Team on WIGOS Metadata) that could provide requirements for WIS2.0.
4. The CAeM ET-ISA (Expert Team on Information Services for Aviation) would be able to provide advice, and ET-Gov (Expert Team on Governance) might also be relevant.
5. CAgM would expect the WAMIS team (Torben Marcussen) and the Expert Team for Data Exchange and Management to contribute.
6. CCl had two groups of relevance: ICT-CSIS (Implementation Coordination team of the Climate Service Information System; Albert Tank is the co-chair and the most appropriate to participate) and IPET-CDMP (Inter-Programme Expert Team on Climate Data Modernization Programme, chaired by Bill Wright).
7. CHy considers data management to be a major issue, but the structure of the commission is expected to be changed, so reference to individual experts rather than expert teams is more appropriate (Tony Boston, Silvano Pecora; Uli Looser, being the head of the Global Runoff Data Center, might also be considered).
8. ICTT-WIS decided that participation by all Commissions in TT-IM would be important for the success of the information lifecycle management component of the WIS.
9. Mr dell'Acqua would recommend to CBS Management Group that membership of TT-IM should be distributed by Commission, and if Commissions were able to provide names before CBS-16 that would be an advantage.
10. Participants should tell their Presidents that ICTT-WIS had recommended participation in TT-IM by their experts.
11. ICTT-WIS supported the concept of an information management workshop to be held mid-2017, but noted that conflicts with other activities might limit attendance.
12. The chair should brief the ICT-CSIS on WIS plans at their meeting in March 2017.

## 7. Road map for ICTT-WIS

1. ICTT-WIS decided that it should continue with the revised terms of reference in [Annex 9](#_Annex_9:_Terms).
2. ICTT-WIS agreed that it should work remotely as required.
3. Membership of ICTT-WIS should be:  
   Co-chair from CBS  
   Co-chair a representative of a technical commission other than CBS  
   A representative for all technical commissions (one of these will be a co-chair)  
   Chair of CBS OPAG ISS  
   Representative implementing the WMO Strategy for Service Delivery  
   Representative of regional associations that do not have representation through one of the other roles.

## 8. Summary of decisions and actions

1. ICTT-WIS had agreed an escalation process to resolve issues that cannot be resolved by the collaborative processes for WIS operational issues.
2. ICTT-WIS endorsed the security incident management plan.
3. ICTT-WIS identified potential representatives from technical commissions who might participate in a team to develop WIS part C.
4. ICTT-WIS decided that the group should have role in resolving operational issues and in monitoring the implementation of WIS 2.0 and defined revised terms of reference.

## 9. Any other business

1. There was no other business.

## 10. Closure of the meeting

1. Mr dell'Acqua closed the meeting at 16:15 on 13 September 2016.

# Action and Decision Summary

## Actions

[**A1** Mr dell'Acqua would recommend to CBS Management Group that membership of TT-IM should be distributed by Commission, and if Commissions were able to provide names before CBS-16 that would be an advantage.](#_Toc462472089)

[**A2** Participants should tell their Presidents that ICTT-WIS had recommended participation in TT-IM by their experts.](#_Toc462472090)

[**A3** The chair should brief the ICT-CSIS on WIS plans at their meeting in March 2017.](#_Toc462472091)

## Decisions

[**D1** ICTT-WIS recommended the escalation procedure in Annex 5 for decisions concerning WIS that could not be resolved at an operational level.](#_Toc462472100)

[**D2** ICTT-WIS supported the proposed security incident management process, but commented that care was needed to make sure that the process itself did not raise threat levels. It suggested that the text in Annex 7 should be added to the document describing the procedure following paragraph 8 of that Annex.](#_Toc462472101)

[**D3** ICTT-WIS proposed changes to the WIS 2.0 strategy for consideration by CBS-16 (Annex 8).](#_Toc462472102)

[**D4** ICTT-WIS decided that participation by all Commissions in TT-IM would be important for the success of the information lifecycle management component of the WIS.](#_Toc462472103)

[**D5** ICTT-WIS supported the concept of an information management workshop to be held mid-2017, but noted that conflicts with other activities might limit attendance.](#_Toc462472104)

[**D6** ICTT-WIS decided that it should continue with the revised terms of reference in Annex 9.](#_Toc462472105)

[**D7** ICTT-WIS agreed that it should work remotely as required.](#_Toc462472106)

[**D8** Membership of ICTT-WIS should be: Co-chair from CBS Co-chair a representative of a technical commission other than CBS A representative for all technical commissions (one of these will be a co-chair) Chair of CBS OPAG ISS Representative implementing the WMO Strategy for Service Delivery Representative of regional associations that do not have representation through one of the other roles.](#_Toc462472107)

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## Annex 1: Ag**e**nda

1 ORGANISATION OF THE MEETING

1.1 Welcome

1.2 Agree agenda and work plan

1.3 Working arrangements

2. INTRODUCTION (CHAIR ICT-ISS)

3. TECHNICAL COMMISSION REPRESENTATIVES STATEMENTS RELATING TO TOR

4. WIS NETWORK GOVERNANCE & DECISION ESCALATION PROCESS

5. WIS STRATEGY DEVELOPMENT-GATHERING STAKEHOLDER REQUIREMENTS

6. PLANNING AND IMPLEMENTATION OF WIS PART C (INFORMATION MANAGEMENT)

7. ROAD MAP FOR ICTT-WIS

8. SUMMARY OF DECISIONS AND ACTIONS

9. ANY OTHER BUSINESS

10. CLOSURE OF THE MEETING

## Annex 2: Participants

|  |  |  |  |
| --- | --- | --- | --- |
| Given name | Family Name | Role | Country |
| Matteo | Dell'Aqua | Chair ICTT-WIS/CBS | France |
| Stephanie | Desbios | CAeM | France |
| Byong-Lyol | Lee | CAgM | Korea, republic of |
| Ariel Hernan | Troisi | JCOMM | Argentina |
| Panmao | Zhai | CCl | China |
| Jörg | Klausen[[1]](#footnote-1) | CAS | Switzerland |
| Peiliang | Shi | D/WIS | WMO |
| David | Thomas |  | WMO |
| Dominique | Berod |  | WMO |
| Steve | Foreman |  | WMO |
| Geir | Braathen |  | WMO |
| Greg | Brock |  | WMO |
| Sam | Mucheni |  | WMO |
| Omar | Baddour |  | WMO |
| Submissions |  |  |  |
| Silvanio | Pecora | CHy | Italy |

## Annex 3: Terms of Reference

The terms of reference defined by EC-68 for the Inter-Commission Task Team on the WMO Information System are:

(a) Recommend to ICT-ISS a process for making decisions impacting on the management of the capacity of WIS networks, including the process for agreeing that data may be designated as for global exchange (using the “GlobalExchange” keyword in the associated WIS Discovery Metadata record that controls routine exchange between GISCs and contents of the WIS cache);

(b) Recommend to ICT-ISS an escalation process for resolving issues that result from decisions made through the collaborative mechanisms established between the GISCs;

(c) Propose to ICT-ISS a mechanism for gathering the expectations of technical commissions and regional associations for their requirements of what WIS would provide for them in the 2020s and beyond;

(d) Inform ICT-ISS of the headline services that technical commissions and regional associations expect WIS to provide in the 2020s that could be used to guide the strategy for WIS before the detailed expectations had been gathered.

## Annex 4: Objectives of the meeting

The meeting needed to address four key issues.

* Exchange of information within WIS
  + some decisions, such as prioritizing of data streams across the WIS Core Network, or making data or product available or not in the cache, may extend beyond in the scope of GISCs decision making authority.
* IT Security issues
  + Comment on Security incident response process
* Strategy for the evolution of WIS : stakeholders requirements
  + WIS attempts to address the need of all WMO Programmes. What are the reason for the limited uptake?
  + How do we keep stakeholders closely engaged?
* Information life cycle management

## Annex 5: Recommended escalation procedure for WIS infrastructure decisions

**Precondition –** A provider or user requests data be added to or removed from the global or regional cache and associated distribution.

1) GISC representatives (ie TT-GISC) should, based on discussion with the providers (DCs) and users, be the group to decide whether a data stream should go in or out of the 24 hour cache and be routinely distributed

a) that all GISCs have to maintain (eg GlobalExchange flag)

b) that a number of GISCs have to maintain (eg RegionalExchange).

Note The flag “Originating Centre” does not affect *GISCs’ infrastructures*

2) Starting decision to add a new or to remove an existing data stream will be by consensus of GISCs representatives in line with normal operational collaboration.

2 a) Implementation time line will be a part of the decision

2b) Decisions should have a fixed timeline and have to be quick (e.g. less than 2 weeks)

3) If unable to reach consensus or the requester is not satisfied with the decision, the problem should be escalated to CBS [ICTT-WIS].

3 a) ICTT-WIS should then make its recommendations based on information from requesters and GISCs

3b) The President of CBS will make a decision based on the ICTT-WIS recommendation, utilising fast track procedures as appropriate.

*Note that issues may be escalated by a GISC either in response to events, occurred or planned, where it is anticipated it might impact on the functioning of WIS.*

## Annex 6: Security incident management for WIS

ICT-ISS recommends that the following should be included in incident management process:

8.bis Confidentiality – Detailed information on security alerting process, incidents and communications between WMO/Reporting Member States/GISCs

8bis.1 Detailed information about the security alerting process shall not be made publicly available and shall remain confidential.

8bis.2 Detailed information on the security incidents as well as the corresponding communications between the WMO Contact Point, the reporting Member State/s and the GISCs on them, shall not be made publicly available and shall remain confidential, unless otherwise agreed by the involved party/ies. Notwithstanding, such information might be used in the development of IT Security best practices whilst safeguarding the identity of those affected.

## Annex 7: Additional text for the IT security procedure

8bis Confidentiality – detailed information on security alerting process, incidents and communications between WMO, Reporting Member States and GISCs

8bis1 Detailed information about the security alerting process shall not be made publicly available and shall remain confidential.

8 bis2 Detailed information on the process or relating to security incidents, as well as corresponding communications between the WMO Contact Point, the reporting Member State(s) and the GISCs, shall not be made publicly available and shall remain confidential unless otherwise agreed by the involved parties. Notwithstanding this, such information might be used in the development of IT security best practices whilst safeguarding the identity of those affected.

## Annex 8: Revised WIS 2.0 strategy

[See Document WIS 2.0 Strategy (<http://wis.wmo.int/file=3003>) for full text and track changes]

1. Change title from WIS Strategy 2030 to WIS 2.0 Strategy

2. Update Para 1.2 and insert new para 1.3 as follows

1.2 This document outlines the strategic activities for the evolution of WIS toward its next generation, “WIS 2.0”, with ~~the~~ an enhanced focus on supporting global agendas, such as GFCS, DRR, UN SDG and the UNFCCC, as well as reducing costs, facilitating NMHS ~~activities as well as~~ and improving efficiency and processes. Further effort will be required to define how services will be delivered and supported to help ~~NMHS~~ WMO Members achieve maximum advantage from WIS

1.3 Note that the terms “cloud computing” and “open ecosystem” are terms of limited meaning in this document as defined in Annex II.

3. Update the WIS 2.0 vision (para 2.1) as follows

2.1 WIS 2.0 will provide users with seamless access to diverse information from a wide range of sources and will enable weather, water and climate information to be related to socioeconomic and other applications context. Through an open eco-system of tools, applications and services , WIS 2.0 will allow all information providers to manage, publish and share their data, products and services and will allow all users to develop value added services and new products.

4. Update para 3.1.1 as follows

3.1.1 … multiple societal benefit areas, is ~~considered to be~~ a factor of economic growth. …

5. Replace the word “cloud” (lower case “c”) with cloud computing in the following cases:

3.1.3 ... It is anticipated that WIS 2.0 users will combine mobile, cloud computing and social technologies …

3.5.1… Cloud computing, Web services, data analytics and other technologies …

4.1.1 … (e.g. cloud computing infrastructure, messaging, search engines, web services etc.) …

4.1.8 … (a) Use of cloud computing infrastructure to host shared …

4.1.9 … comparing the benefits of managed cloud computing services that are operated …

Annex II para

2.1 … “it may be much more cost effective for an organisation to use a ~~Cloud~~ cloud computing service for processing”

2.3 ICT ISS is investigating the applicability and potential of cloud computing services and cloud based data exchange in support of the WMO Information System

6. Update para 3.2.1, 3.2.2, 3.2.5, and 3.4.1 as follows

3.2.1 … For example, the current generation of satellites produces about 50 times more data ~~that~~ than its predecessor. …

3.2.2 In addition to ~~traditional~~ information traditionally used by NMHSs, increasing use will be made of ~~private sector~~ information ~~and data~~ from sources not previously considered, both private and public.

3.2.5 It will therefore be ever-more challenging to manage and share the increasing volume …

3.4.1 Many policy makers and funders ~~now~~ place requirements on public sector …

7. Update para 4.1.3, 4.1.3 (a), 4.1.6, 4.1.7, 4.1.8 (c) and 4.3.3

4.1.3 ... It aims to establish a ‘global ~~data~~ information management, processing and sharing platform’ that will provide the following benefits:

(a) Accessibility: a platform enhancing the collection of data and allowing applications and services to be developed, capable of working with high-volume and archived data …

4.1.6 … This will support emergence of common approaches designed to provide users with a confidence about the quality of information utilising user feedback mechanisms for continuous improvement and to present a seamless user experience across Members’ services.

4.1.7 WIS 2.0 will continue to provide data collection and distribution at national, regional and global scales

4.1.8 (c) … Table-Driven Code Forms (GRIB, BUFR), to simplify data provision and use by a broader …

4.3.3 OPAG ISS will, in collaboration with other technical commissions and programmes, prepare an implementation plan describing the transition to WIS 2.0 that takes into account priorities based on management of risks and benefits.

8. Update para 5.2 and 5.6 as follows:

5.2 Each contributor’s solution has to interface with other contributors’ solutions, whilst meeting local, national and regional requirements …

5.6 … it is recommended that a full time project manager is appointed to guide implementation of the strategy, to ~~complete~~ maintain a comprehensive risk assessment and to act as the focal point for all significant issues.

## Annex 9: Terms of Reference for the future ICTT-WIS

Provide a channel for technical commission input into the operation and development of the WIS, in particular:

(a) Advise the president of CBS on the use of globalExchange and regionalExchange flags in WIS in those cases that could not be resolved using normal operational coordination activities;

(b) Recommend to ICT-ISS solutions on issues unable to be resolved through the collaborative mechanisms established between WIS centres;

(c) Assist ICT-ISS in gathering the requirements of programmes, technical commissions and regional associations for what WIS would provide for them in the 2020s and beyond;

(d) Advise ICT-ISS on whether the guidance developed for WMO information management practices meets the requirements of all programmes, technical commissions and regional associations;

(e) Communicate to WMO Programmes and technical commissions on topics relating to WIS to support ICT-ISS outreach activities;

(f) Assist ICT-ISS in monitoring implementation of the WIS 2.0 strategy.

1. Participation via Webex [↑](#footnote-ref-1)